

9.15 Township of Jefferson

This section presents the jurisdictional annex for the Township of Jefferson.

9.15.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan's primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Name :Ed Mangold	Name: Bill Craig
Address: 1033 Weldon Rd, Lake Hopatcong, NJ 07849	Address: 1033 Weldon Rd, Lake Hopatcong, NJ 07849
Phone: 973-440-7234	Phone: 973-208-6155
E-mail: emangold@jeffersonpolice.com	E-mail: wcraig@jeffersonpolice.com

9.15.2 Municipal Profile

The Township of Jefferson is the northernmost municipality in Morris County. It has a total area of 43.11 square miles, of which, 39.14 square miles is land and 3.98 square miles is water. The Township can be divided into two halves, Milton and Lake Hopatcong. Each half has its own first aid squad, fire department station, and elementary schools. Lake Swannanoa is an unincorporated community located within the Township. Several major roads pass through the Township: Green Pond Road (County Route 513), State Route 15, State Route 23, State Route 181, and Interstate 80). The Township of Jefferson is bordered to the west by Sparta Township (Sussex County), the Borough of Hopatcong (Sussex County) to the east, the Township of West Milford (Passaic County) to the north, the Township of Rockaway to the east, and the Borough of Mount Arlington and the Township of Roxbury to the south. According to the U.S. Census, the 2010 population for the Township of Jefferson was 21,314.

Major streams in the Township include the Rockaway, Pequannock, and Musconetcong Rivers and their tributaries. There are 10 named lakes in Jefferson Township that range in size from 2.9 acres to 2,658 acres. A large portion of Lake Hopatcong, the largest lake in New Jersey, is located within the Township's boundaries. It is nine miles in length and covered by 2,500 acres of freshwater. Lake Hopatcong was originally created as part of the Morris Canal and was the canal's major source of water. The Lake is the largest freshwater body in New Jersey. It was created by damming and flooding two ponds, Great Pond and Little Pond, and the Musconetcong River. Currently, it is mainly a residential lake with few public access points.

The Township is also located in the New Jersey Highlands Region, one of the 88 municipalities protected by and subject to the provisions of the Highlands Water Protection and Planning Act. The Township Preservation Area encompasses nearly all of the Township of Jefferson (24,080 acres or 87.9%).

Growth/Development Trends

The following table summarizes recent residential/commercial development since 2010 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in Section 9.15.8 of this annex which illustrates the hazard areas along with the location of potential new development.



Table 9.15-1. Growth and Development

Property or Development Name	Type (e.g., Res., # of Comm.) Units/Structures		Location (address and/or Block & Lot)	Known Hazard Zone(s)	Description/Status of Development	
Recent Development from 2010 to present						
Prospect Point Boat Yard	Comm.	1	Brady Road	None	75% Complete	
Rt 23 Fitness Center	Comm.	1	Route 23	None	75% Complete	
Quick Check Comm. 1 Route 15 None Complete						
Known or Anticipated Development in the Next Five Years						
None identified at this time.						

^{*} Only location-specific hazard zones or vulnerabilities identified.

9.15.3 Natural Hazard Event History Specific to the Municipality

Morris County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2008 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Table 9.15-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
March 12 – April 15, 2010	Severe Storms and Flooding	DR-1897	Yes	Multiple roads were closed throughout the Township due to downed trees and power lines. Some residential homes suffered minor damage due to fallen trees. Public assistance was requested and the Township had \$109,791 eligible obligated (\$81,082 federal and \$27,447 local share). Other losses in the Township included overtime for police, fire and DPW (road closures, clearing of debris, pumping flooded basements).
December 26- 27, 2010	Severe Winter Storm and Snowstorm	DR-1954	Yes	Numerous roads were closed throughout the Township and about 1,600 customers were without power for three days. The Township opened a warming station for residents that loss power. Some homes suffered damage due to fallen trees and branches from the weight of the snow. The Township requested public assistance and had \$126,473 eligible obligated (\$94,855 federal and \$31,618 local share). Other losses to the Township included police and DPW overtime (road closures and clearing of debris).
August 26 – September 5, 2011	Hurricane Irene	EM-3332 DR-4021	Yes Yes	During Hurricane Irene, the Township opened warming centers due to power outages in 80% of the Township, for up to one week. Multiple roads were closed due to wash outs, downed power lines, and knocked down trees. Damages to the Township included a dam breach



Table 9.15-2. Hazard Event History

Dates of Event	Event Type	FEMA Declaration # (If Applicable)	County Designated?	Summary of Damages/Losses
				at Lake Shawnee which led to flooding this section of the Township and caused damage to the dam. Numerous roads were washed out in the Township as well. Public property damages included the roof of the Health Center and the boiler room flooded at one of the schools. Numerous homes were damaged by fallen trees and limbs. Public assistance was requested (\$97,009 eligible obligated; \$72,757 federal obligated; and \$24,252 local share). Other costs to the Township included overtime for police, fire and DPW.
October 29, 2011	Severe Storm	DR-4048	Yes	This storm caused power outages to nearly 60% of the Township for three days. Charging stations were established for residents. Numerous trees, poles and wires were down. There were many road closures because of this. The DPW spent two weeks removing debris. Many homes in the Township had roof damage from falling trees and limbs. Public assistance was requested (\$93,591 eligible obligated; \$70,193 federal obligated; and \$23,397 local share). Other costs to the Township included overtime for police, fire and DPW.
October 26 – November 8, 2012	Hurricane Sandy	EM-3354 DR-4086	Yes Yes	Hurricane Sandy caused a 12-day power outage to 80% of the Township. Warming centers were opened for its residents. Multiple roads were closed due to downed trees and power lines. DPW spent eight weeks removing and hauling debris. Numerous homes were damaged from fallen trees and limbs. There was one fatality in the Township. Public assistance was requested (\$626,695 eligible obligated; \$564,026 federal obligated; and \$62,669 local share).

9.15.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Township of Jefferson. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk/Vulnerability Risk Ranking

The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Jefferson.

Table 9.15-3. Hazard Risk/Vulnerability Risk Ranking

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, c}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Drought	Damage estimate not available	Frequent	27	Medium
Dam Failure	Damage estimate not available	Occasional	24	Medium
Earthquake	500-year MRP: \$1,627,664 2,500-year MRP: \$34,444,886	Occasional	24	Medium



Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard ^{a, o}	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking ^b
Extreme Temperature	Damage estimate not available	Frequent	18	Medium
Flood	1% Annual Chance: \$4,058,481	Frequent	18	Medium
Geological Hazards	Exposed to Class A and Class B: \$10,227,487	Frequent	18	Medium
Severe Storm	100-Year MRP: \$2,560,589 500-year MRP: \$14,902,883 Annualized: \$167,175	Frequent	48	High
Winter Storm	1% GBS: \$50,743,333 5% GBS: \$253,716,666	Frequent	54	High
Wildfire	Estimated Value Exposed to Extreme, Very High and \$8,244,752 High:	Frequent	18	Medium
Disease Outbreak	Damage estimate not available	Frequent	36	High
Hazardous Materials	Damage estimate not available	Frequent	36	High
Infestation	Damage estimate not available	Frequent	18	Medium

Notes:

- a. Building damage ratio estimates based on FEMA 386-2 (August 2001)
- b. The valuation of general building stock and loss estimates was based on custom inventory for the municipality.

High = Total hazard priority risk ranking score of 31 and above

Medium = Total hazard priority risk ranking of 20-30+

Low = Total hazard risk ranking below 20

- c. Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
- d Loss estimates for the flood and earthquake hazards represent both structure and contents.
- e. The HAZUS-MH earthquake model results are reported by Census Tract.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Jefferson.

Table 9.15-4. NFIP Summary

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Township of Jefferson	147	71	\$1,163,813.74	5	0	18

Source: FEMA Region 2, 2014

- (1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2, and are current as of 9/30/2014.

 Please note the total number of repetitive loss properties includes the severe repetitive loss properties. The number of claims represents claims closed by 9/30/14.
- (2) Total building and content losses from the claims file provided by FEMA Region 2.
- (3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

 Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

Number of policies and claims and claims total exclude properties located outside County boundary, based on provided latitude and longitude.



Critical Facilities

The table below presents HAZUS-MH estimates of the damage and loss of use to critical facilities in the community as a result of a 1-percent annual chance flood event.

Table 9.15-5. Potential Flood Losses to Critical Facilities

		Exposure			otential Loss from 1% Flood Event	
Name	Type	1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	Days to 100- Percent ⁽²⁾
Cozy Lake Dam	Dam		X	-	-	-

Source: HAZUS-MH 2.1

Note (1): HAZUS-MH 2.1 provides a general indication of the maximum restoration time for 100% operations. Clearly, a great deal of effort is needed to quickly restore essential facilities to full functionality; therefore this will be an indication of the maximum downtime (HAZUS-MH 2.1 User Manual).

Note (2): In some cases, a facility may be located in the DFIRM flood hazard boundary; however HAZUS did not calculate potential loss. This may be because the depth of flooding does not amount to any damages to the structure according to the depth damage function used in HAZUS for that facility type. Further, HAZUS-MH may estimate potential damage to a facility that is outside the DFIRM because the model generated a depth grid beyond the DFIRM boundaries.

NA Not available

X Facility located within the DFIRM boundary

Not calculated by HAZUS-MH 2.1

Other Vulnerabilities Identified

According to the 2015 preliminary Flood Insurance Study (FIS) for Morris County, the Township of Jefferson has not historically experienced a significant amount of flood damage. Flooding of populated areas is usually confined to lakefront homes and is considered relatively minor. One notable exception occurs along the Rockaway River at Berkshire Valley Road just downstream of Route 15. Nearly all other flooding that does occur in the Township is limited to undeveloped low-lying areas adjacent to streams (FEMA FIS 2015).

Additionally, the Township identified the following vulnerabilities in their municipality:

• Lake Winona Dam needs to be repaired in order to avoid flooding of a residential neighborhood if the dam was to breach.

9.15.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of Mitigation Planning into Existing and Future Planning Mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Township of Jefferson.



Table 9.15-6. Planning and Regulatory Tools

Tool/Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Master/Comprehensive Plan	Yes	Local	Plan Board	Main Plan 1978, Updated 2014
Capital Improvements Plan	Yes	Local	Administration	State requirement
Floodplain Management/Basin Plan	No			
Stormwater Management Plan	Yes	Local	Twp Eng/DPW	Chapter 439; Jefferson Township Stormwater Management Plan, March 2006
Open Space Plan	Yes	Local/County	Open Space Comm.	2014 Open Space Inventory
Stream Corridor Management Plan	Yes	Local	Twp Eng	Chapter 370 Riparian zones
Watershed Management or Protection Plan	Yes	Local/County	Twp Eng	Part of Open Space
Economic Development Plan	Yes	Local	Mayor/Admin	Updated July 2014 – Planning Board and Town Council working together with Highlands Commission; incorporated with the Master Plan
Comprehensive Emergency Management Plan	Yes	Local	OEM	EOP updated 2012
Emergency Response Plan	Yes	Local	OEM/PD	EOP updated 2012
Post-Disaster Recovery Plan	Yes	Local	OEM/Admin	EOP updated 2012
Transportation Plan	Yes	Local	BOE/Trans	EOP updated 2012
Strategic Recovery Planning Report	No			
Other Plans:	No			
Regulatory Capability				
Building Code	Yes	State & Local		State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes	Local	Zoning Off	Chapter 70, Chapter 490
Subdivision Ordinance	Yes	Local	Planning Board	Chapter 435
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Construction Official	Chapter 262
NFIP: Cumulative Substantial Damages	No			
NFIP: Freeboard	Yes	State, Local		
Growth Management Ordinances	Yes	Local/State	Planning Bd	Art XI Highlands Conformance Guide
Site Plan Review Requirements	Yes	Local/State	Planning Bd	490-58 Highlands Area Exemption
Stormwater Management Ordinance	Yes	Local	Twp Eng	Chapter 439
Municipal Separate Storm Sewer System (MS4)	Yes	Local	Twp Eng	Chapter 420
Natural Hazard Ordinance	No			
Post-Disaster Recovery	No			



Table 9.15-6. Planning and Regulatory Tools

Tool/Program (code, ordinance, plan) Ordinance	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept./Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Real Estate Disclosure Requirement	Yes	State	Division of Consumer Affairs	N.J.A.C. 13:45A-29.1
Other [Special Purpose Ordinances (i.e.,, sensitive areas, steep slope)]	Yes	Local/Highlands	Twp Eng	Ch 370, Ch 417

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Jefferson.

Table 9.15-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/Agency/Position
Administrative Capability	-	
Planning Board	Yes	Mayor
Mitigation Planning Committee	Yes	OEM/Twp Eng/Admin/LEPC
Environmental Board/Commission	Yes	Mayor
Open Space Board/Committee	Yes	Council
Economic Development Commission/Committee	No	Inactive Council
Maintenance Programs to Reduce Risk	Yes	DPW
Mutual Aid Agreements	Yes	FD/EMS/OEM
Technical/Staffing Capability		
Planner(s) or Engineer(s) with knowledge of land development and land management practices	Yes	Planning/Zoning Bds/Council/Mayor
Engineer(s) or Professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Twp Eng/Building/Construction Officials
Planners or engineers with an understanding of natural hazards	Yes	Twp Eng/Building/Construction Officials
NFIP Floodplain Administrator	Yes	Construction Official
Surveyor(s)	Yes	Twp Eng
Personnel skilled or trained in GIS and/or Hazus-MH applications	Yes	Twp Eng
Scientist familiar with natural hazards	No	
Emergency Manager	Yes	OEM Coordinators
Grant Writer(s)	Yes	Department Heads
Staff with expertise or training in benefit/cost analysis	Yes	Twp Eng/Admin
Professionals trained in conducting damage assessments	Yes	Twp Engineer, DPW Superintendent, CFO

Fiscal Capability

The table below summarizes financial resources available to the Township of Jefferson.





Table 9.15-8. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No/Don't Know)
Community Development Block Grants (CDBG, CDBG-DR)	Depends on location, project, County approval
Capital Improvements Project Funding	Yes, Admin/Mayor
Authority to Levy Taxes for specific purposes	Yes, Admin/Mayor
User fees for water, sewer, gas, or electric service	Yes, Water/Sewer only, Utility Dept
Impact Fees for homebuyers or developers of new development/homes	Yes, with State approval of specific plans
Stormwater Utility Fee	No
Incur debt through general obligation bonds	Yes, Admin/Mayor
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other Federal or State Funding Programs	At times, Mayor/Admin
Open Space Acquisition Funding Programs	At times, Mayor/Admin
Other	

Community Classifications

The table below summarizes classifications for community program available to the Township of Jefferson.

Table 9.15-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	#4	2/23/2010
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	5 and 8B	N/A
Storm Ready	No	NP	N/A
Firewise	No	NP	N/A
Disaster/Safety Programs in/for Schools	No	NP	N/A
Organizations with Mitigation Focus (advocacy group, non-government)	No	NP	N/A
Public Education Program/Outreach (through website, social media)	No	NP	N/A
Public-Private Partnerships	No	NP	N/A

N/A = Not applicable. NP = Not participating. -= Unavailable. TBD = To be determined.

The classifications listed above relate to the community's ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery, and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1,000 feet of a creditable fire hydrant and is within five road miles of a recognized Fire Station.



Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at http://www.isomitigation.com/ppc/0000/ppc0001.html
- The National Weather Service Storm Ready website at http://www.weather.gov/stormready/howto.htm
- The National Firewise Communities website at http://firewise.org/

Self-Assessment of Capability

The table below provides an approximate measure of Jefferson's capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.15-10. Self-Assessment Capability for the Municipality

	Degree of Hazard Mitigation Capability							
Area	Limited (If limited, what are your obstacles?)*	Moderate	High					
Planning and Regulatory Capability			X					
Administrative and Technical Capability			X					
Fiscal Capability	Budget & Levy Caps by State, Tax Rate							
Community Political Capability		X						
Community Resiliency Capability		X						
Capability to Integrate Mitigation into Municipal Processes and Activities.			X					

National Flood Insurance Program

NFIP Floodplain Administrator

Mr. Thomas J. Mahoney, Construction Official

Flood Vulnerability Summary

A formal list of flood-damaged properties and property owner's interest in pursuing mitigation is not maintained by the Township. At this time, a definite number of structures damaged during Hurricane Sandy cannot be provided. Substantial Damage Estimates are not made by the floodplain administrator. No Substantial Damage Estimates were made following Hurricane Sandy. Currently no property owners have expressed an interest in mitigation.

Resources

The community's Flood Damage Prevention Ordinance (FDPO) identifies the construction official as the local NFIP Floodplain Administrator, currently Thomas J. Mahoney, for which floodplain administration is an auxiliary duty. In addition to the NFIP FPA, the community has supplementary staff for which NFIP is an auxiliary duty; personnel include the Township Engineer.

As part of the plan review for new construction or additions, FEMA flood maps are referenced to determine if structures are in the floodplain. If a structure needs to be elevated, inspections are performed to confirm compliance with NFIP and National Building Codes.



Thomas J. Mahoney feels he is adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. No barriers have been identified which inhibit the Township's ability to fully implement the floodplain management program. The Township of Jefferson currently participates in the Community Rating System (CRS). Thomas J. Mahoney is not certified in floodplain management, however attends regular continuing education programs for code enforcement.

At this time, the Township of Jefferson does not conduct formal education and outreach regarding floodplain management.

Compliance History

The community is currently in good standing in the NFIP and has no outstanding compliance issues. The current NFIP Floodplain Administrator has no knowledge of when the last CAV was performed. The municipality sees no specific need for a CAV at this time.

Regulatory

The FDPO is found at Chapter 262 of the Township code. Current regulations and codes meet the requirements set forth by FEMA and the State of New Jersey. Additional local ordinances and codes support the implementation of the floodplain management program in the Township.

The Township of Jefferson does not participate in the Community Rating System (CRS) program. According to the Township's FPA, the Township obtained rating in the ISO.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

Planning

Master/Comprehensive Plan: The Township's master plan incorporates natural hazard risk and mitigation. Additionally, the Township has safe growth practices. The Township is part of the New Jersey Highlands Region and its master plan is titled "Jefferson Township Highlands Preservation Area Master Plan Element" dated April 2014. This plan guides land use and development within the Township's Highlands Preservation Area. The existing master plan has an open space and recreation plan element that provides information on existing and proposed open space preservation and recreational opportunities in the Township. This master plan supplements the existing element, as applicable to the Preservation Area, and includes additional information and Highlands Council goals and objectives.

Open Space: The Township's 2014 Open Space Inventory was developed by the Morris County Planning and Development and the Township's Environmental Commission. It identifies the areas of preserved open space within the Township and the lands ownership (state, county, municipal, or non-profit).

Stormwater Management Plan: The Jefferson Township Stormwater Management Plan, dated March 2006, was prepared by the Township Department of Public Works. This plan documents the strategy for Jefferson Township to address stormwater-related impacts of existing developed land uses as well as proposed development. The plan also addresses groundwater recharges, stormwater quantity, and stormwater quality



impacts by incorporating stormwater design and performance standards for new major development. The main goal of the plan is to reduce flood damage including damage to life and property.

Other Plans: The Township has a Continuity of Operations (COOP) Plan and a fire plan. The COOP plan integrates mitigation and the fire plan identifies vulnerable areas within the Township.

Regulatory and Enforcement

Prior to land use, zoning changes or development permitting, the Township reviews the hazard mitigation plan and other hazard analysis to ensure consistent and compatible land use within the community. The Township also encourages the consideration of low occupancy, low-density zoning in hazard areas where practical. The Township limits development in high hazard areas throughout the community. The Township's permit review process includes addressing of hazards such as building in/near floodplains, wildfire prone areas, etc. Hazard resistant construction standards are currently incorporated into the design and location of projects within the Township. The rezoning procedures for the Township recognizes hazard areas as limits on zoning changes.

When updating municipal ordinances, the Township of Jefferson makes hazard mitigation a priority during the process.

Operational and Administration

The Township has employee job descriptions that includes hazard mitigation. Hazard mitigation actions are incorporated into daily operations of the Township and all projects are a goal to the municipality.

The Township currently does not have a community resilience committee or advisor. However, this will be pursed in the next five years. The Township has identified this as a new mitigation action; refer to Table 9.15-11.

Fiscal

Capital Improvement Budget: The Township's Capital Improvement Budget has a line item for mitigation project funding and funding has been provided for mitigation projects identified in the HMP. Additionally, the Township has provided protection to buildings/infrastructure in high hazard areas.

Municipal/Operating Budget: The Township's municipal/operating budget currently does not contain a line item for mitigation project funding. However, this will be pursed in the next five years. The Township has identified this as a new mitigation action; refer to Table 9.15-11.

Education and Outreach

The Township does not reach out to colleges and universities for technical assistance with natural hazard mitigation activities. However, the Township does work closely with local schools and assist with community service projects for the service organizations.

The Township does have a public outreach program to inform citizens on hazards. The Township offers training/outreach on best practices for hazard mitigation and grant applications. Training and outreach on hazard identification is offered in the Township. However, the Township does not conduct outreach on hazards or offer any other training related to hazard mitigation. This will be pursed in the next five years. The Township has identified this as a new mitigation action; refer to Table 9.15-11.



9.15.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2010 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.



Table 9.15-11. Past Mitigation Initiative Status

2010 Mitigation Action	Lead	Status	Describe Status	Next Step	Describe Next Step
Jefferson Twp 1: Engineering study to determine mitigation action including expanding spill wall, constructing a channel, and strengthening back of Lakes Swannanoa Dam #2 on Manor Drive and Berkshire Valley Road. Note: Dam was condemned by DEP, one year to fix or drain lake (end of 2009).	Lake Swannanoa Home Owners Association	Complete	Dam repairs completed	Discontinue	Project complete
Jefferson Twp 2: Backup power for Milton First Aid Squad on Milton Road, Oak Ridge.	EMS Squad Captain	Complete	Obtained portable generator until a permanent generator is obtained	Discontinue	Project Complete
Jefferson Twp 3: Backup power for Jefferson Township Rescue Squad on Route 15 South and Lake Hopatcong.	Ems Squad Captain	Complete	Obtained portable generator until a permanent generator is obtained	Discontinue	Project Complete
Jefferson Twp 4: Backup power for Jefferson Township High School (shelter) on Weldon Road.	Board of Education	Complete	Received Mitigation Grants to purchase generator and complete project	Discontinue	Project Complete
Jefferson Twp 5: Backup power for Briggs School (shelter) on Shawanee Boulevard.	Board of Education	No Progress		Discontinue	Not needed
Jefferson Twp 6: Backup power for shelter at Jefferson Chase Senior Housing Complex on Berkshire Valley Road.	Facility Administrator	No Progress		Discontinue	Building owned by HUD funding needs to be initiated by them
Jefferson Twp 7: Acquisition/elevation of five repetitive loss properties located on Aldrin Road.	OEM and Engineer	No Progress	Flooding issues have been addressed with this project, including drainage work and funding received after Hurricane Irene.	Discontinue	Flooding issues have been resolved and Township does not wish to include this action in the 2015 Plan Update.
Jefferson Twp 8: Acquisition/elevation of 30 Repetitive loss properties located on Shawnee Trail Road.	OEM and Engineer	No Progress	Flooding issues have been addressed with this project, including drainage work and funding received after Hurricane Irene.	Discontinue	Flooding issues have been resolved and Township does not wish to include this action in the 2015 Plan Update.
Jefferson Twp 9: Acquisition/elevation of 20 repetitive loss properties located on Venetian Drive.	OEM and Engineer	No Progress	Flooding issues have been addressed with this project, including drainage work and funding received after Hurricane Irene.	Discontinue	Flooding issues have been resolved and Township does not wish to include this action in the 2015 Plan Update.



2010 Mitigation Action	Lead	Status	Describe Status	Next Step	Describe Next Step
Jefferson Twp 10: Acquisition/elevation of 15 repetitive loss properties located on Louisiana Road.	OEM and Engineer	No Progress	Flooding issues have been addressed with this project, including drainage work and funding received after Hurricane Irene.	Discontinue	Flooding issues have been resolved and Township does not wish to include this action in the 2015 Plan Update.
Jefferson Twp 11: Develop all- hazards public education and outreach program for hazard mitigation and preparedness	Local and County OEM	In Progress	On-going process, obtained Honeywell Instant Alert System for residents to sing up to receive emergency and nonemergency messages from the town. 65% residents enrolled.	Include in 2015 HMP	Continuing process



Completed Mitigation Initiatives not Identified in the Previous Mitigation Strategy

The municipality has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2010 Plan:

• Installed generator in the Jefferson Township high school to use as a shelter

Proposed Hazard Mitigation Initiatives for the Plan Update

The Township of Jefferson participated in a mitigation action workshop in January 2015 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

Table 9.15-12 summarizes the comprehensive-range of specific mitigation initiatives the Township of Jefferson would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as 'High,' 'Medium,' or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.15-123 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.15-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Applies to New and/or Existing Structures*	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
JFT-1 (old Jefferson Twp 11)	Develop all-hazards public education and outreach program for hazard mitigation and preparedness for all Township residents	N/A	All	G-1, G-3	OEM, Police, Fire, EMS and Twp Administration	Increased safety for the public	Low to Medium	Township Funded	OG	High	EAP	PI
JFT-2	Back Up Power for Camp Jefferson	Existing	All	G-3, G-4	OEM, Recreation Department	Will provide a shelter on the Lake Hopatcong side of Township	Medium	Energy or Mitigation Grants, Township Funded	Short Term	Medium	SIP	PP
JFT-3	Lake Winona Dam Repair	Existing	Dam Failure, Flood	G-3, G-4	Winona Lake Community (privately owned lake)	Avoid flooding residential neighborhood if breached	High	Homeowner dues and assessments	Short Term	High	SIP	PP
JFT-4	Upgrade Township communication dispatch center	Existing	All	G-3	OEM, Police, Fire, EMS, DPW, and Utility Departments	Safety of residents and first responders	High	Grants and Township Funding	Short Term	High	SIP	PP, ES
JFT-5	Lake Shawnee Bridge Replacement	Existing	Flood	G-3, G-4	DPW, Township and County Engineers	Insure roadway safety	High	Grants and State, County and Local Funding	Short Term	Medium	SIP	PP
	Support the mitigation of vulnerable structures via retrofit (e.g., elevation, flood-proofing) or acquisition/relocation to project structures from future damage, with repetitive loss and severe repetitive loss properties as a priority where applicable (Township has five RL properties) Phase 1: Identify appropriate candidates and determine most cost-effective mitigation option (in progress) Phase 2: Work with the property owners to implement selected action based on available funding and local match availability											
JFT-6	See above	Existing	Flood, Severe Weather, Severe Winter Weather	1, 3	Engineering via NFIP FPA with NJOEM and FEMA Support	High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Ongoing (outreach and specific project identification); Long-term DOF (specific project application and implementation)	High	SIP	PP

Notes:





Not all acronyms and abbreviations defined below are included in the table.

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

CAV Community Assistance Visit
CRS Community Rating System
DPW Department of Public Works

FEMA Federal Emergency Management Agency

FPA Floodplain Administrator HMA Hazard Mitigation Assistance

N/A Not applicable

NFIP National Flood Insurance Program

NJDEP New Jersey Department of Environmental Protection

NJOEM New Jersey Office of Emergency Management

OEM Office of Emergency Management

Costs:

Where actual project costs have been reasonably estimated:

Low < \$10,000

Medium \$10,000 to \$100,000

High > \$100,000

Where actual project costs cannot reasonably be established at this time:

Low Possible to fund under existing budget. Project is part of, or can be part of

an existing on-going program.

Medium Could budget for under existing work plan, but would require a

reapportionment of the budget or a budget amendment, or the cost of the

project would have to be spread over multiple years

High Would require an increase in revenue via an alternative source (i.e.,, bonds,

grants, fee increases) to implement. Existing funding levels are not

adequate to cover the costs of the proposed project.

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program

HMGP Hazard Mitigation Grant Program
 PDM Pre-Disaster Mitigation Grant Program
 RFC Repetitive Flood Claims Grant Program
 SRL Severe Repetitive Loss Grant Program

Timeline:

Short 1 to 5 years

Long Term 5 years or greater

OG On-going program

DOF Depending on funding

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology)

has been evaluated against the project costs, and is presented as:

Low= < \$10,000

Medium \$10,000 to \$100,000

High > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

Low Long-term benefits of the project are difficult to quantify in the short term.

Medium Project will have a long-term impact on the reduction of risk exposure to

 ${\it life\ and\ property, or\ project\ will\ provide\ an\ immediate\ reduction\ in\ the\ risk}$

exposure to property.

High Project will have an immediate impact on the reduction of risk exposure to

life and property.

Mitigation Category:

- Local Plans and Regulations (LPR) These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- Structure and Infrastructure Project (SIP)-These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area.
 This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- Natural Systems Protection (NSP) These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- Education and Awareness Programs (EAP) These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them.

 These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:





- Preventative Measures (PR)-Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- Property Protection (PP)-These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- Public Information (PI)-Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- Natural Resource Protection (NR)-Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- Structural Flood Control Projects (SP)-Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- Emergency Services (ES)-Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities



Table 9.15-13. Summary of Prioritization of Actions

Mitigation Action/Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High/Medium/Low
JFT-1 (old Jefferson Twp 11)	Develop all-hazards public education and outreach program for hazard mitigation and preparedness for all Township residents	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
JFT-2	Back Up Power for Camp Jefferson	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	Medium
JFT-3	Lake Winona Dam Repair	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
JFT-4	Upgrade Township communication dispatch center	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
JFT-5	Lake Shawnee Bridge Replacement	0	1	0	1	1	1	0	0	1	1	1	0	1	1	9	Medium
JFT-6	Support the mitigation of vulnerable structures	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Note: Refer to Section 6 which contains the guidance on conducting the prioritization of mitigation actions.



9.15.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.15.8 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Township of Jefferson that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Jefferson has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

9.15.9 Additional Comments

None at this time.



Figure 9.15-1. Township of Jefferson Hazard Area Extent and Location Map 1

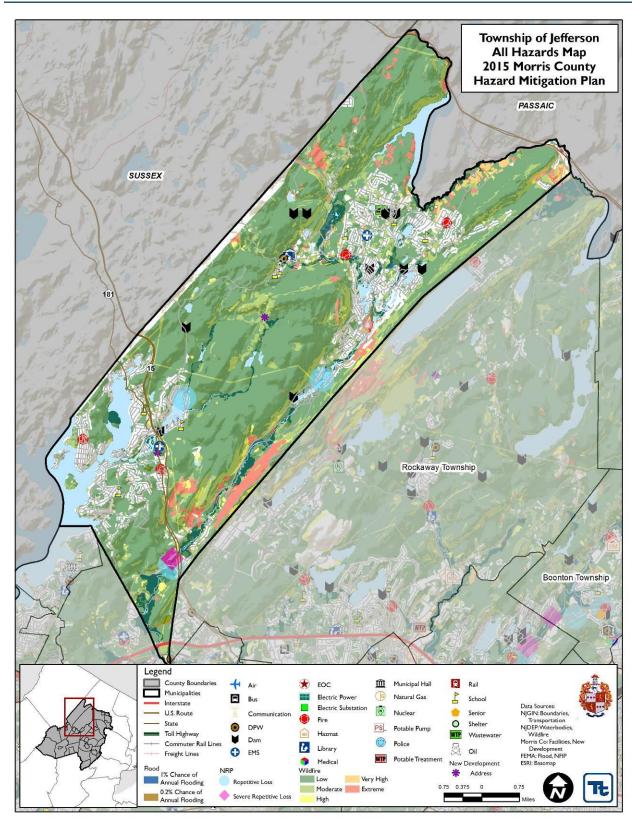
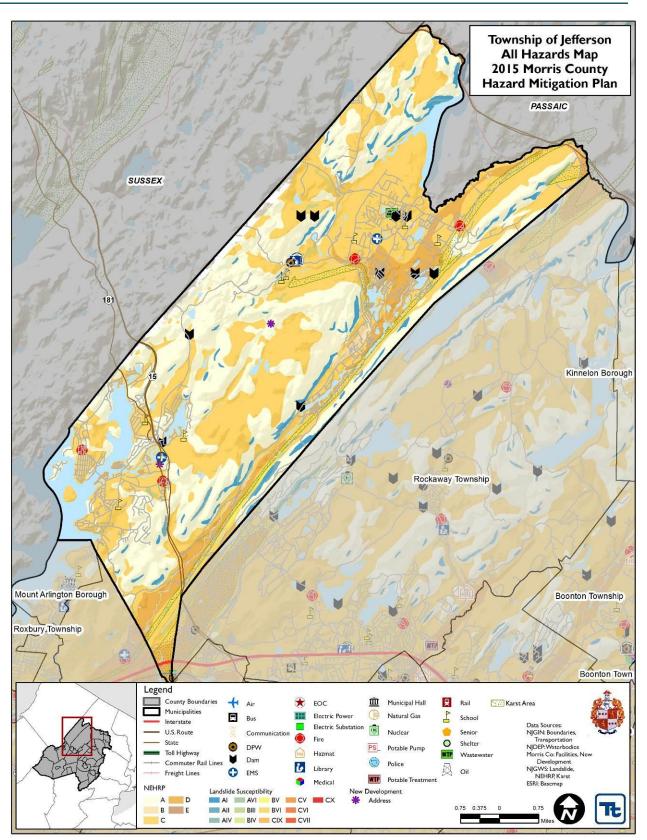




Figure 9.15-2. Township of Jefferson Hazard Area Extent and Location Map 2





Action Number: JT-2

Mitigation Action/Initiative: Back Up Power for Camp Jefferson

	Assessing the Risk
Hazard(s) addressed:	All (power outages caused by the hazards)
Specific problem being mitigated:	Provide generator power during power outages for location that is used for a shelter.
	Evaluation of Potential Actions/Projects
Actions/Projects Considered	1. Use smaller portable generators
(name of project and reason	2. Do nothing – current problem continues
for not selecting):	3. No other feasible actions/projects identified
	Action/Project Intended for Implementation
Description of Selected Action/Project	Install backup generator for shelter.
Action/Project Category	SIP
Goals/Objectives Met	3, 4
Applies to existing, future, or not applicable	Existing
Benefits (losses avoided)	Will provide a shelter on the Lake Hopatcong side of town
Estimated Cost	\$60,000 to \$80,000
Priority*	Medium
	Plan for Implementation
Responsible Organization	OEM/Recreation Department
Local Planning Mechanism	OEM/Administration/Recreation Dept/Township Employed Electrical Specialist.
Potential Funding Sources	Energy or Mitigation Grants, Township Funded
Timeline for Completion	1 to 5 years
	Reporting on Progress
Date of Status Report/ Report of Progress	Date: 12/31/15 Progress on Action/Project: OEM/Recreation Department

^{*} Refer to results of Prioritization (next page)



Action Number: JT-2

Mitigation Action/Initiative: Back Up Power for Camp Jefferson

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Provide shelter for residents
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	Med	



Action Number: JFT-3

Mitigation Action/Initiative: Lake Winona Dam Repair

	Assessing the Risk						
Hazard(s) addressed:	Dam Failure, Flood						
Specific problem being mitigated:	Repairs to structure to insure breach doesn't occur						
	Evaluation of Potential Actions/Projects						
Actions/Projects Considered	1. Make repairs to the dam						
(name of project and reason	2. Do nothing – current problem continues						
for not selecting):	3. No other feasible actions/projects identified						
	Action/Project Intended for Implementation						
Description of Selected Action/Project	Make dam repairs as outline by DEP						
Action/Project Category	SIP						
Goals/Objectives Met	G-3, G-4						
Applies to existing, future, or not applicable	Existing						
Benefits (losses avoided)	Avoid flooding residential neighborhood if breached						
Estimated Cost	High-\$100,000+						
Priority*	High Plan for Implementation						
Responsible Organization	Winona Lake Community (privately owned lake)						
Local Planning Mechanism	Winona Homeowners assn/Township Administration/DEP						
Potential Funding Sources	Homeowner dues and assessments						
Timeline for Completion	1 to 5 years						
	Reporting on Progress						
Date of Status Report/ Report of Progress	Date: 12/31/15 Progress on Action/Project: Homeowners Association						

^{*} Refer to results of Prioritization (next page)



Action Number: JFT-3

Mitigation Action/Initiative: Lake Winona Dam Repair

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Protect residents who live in the area of the dam
Property Protection	1	Protect properties that are located within the area of the dam
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (High/Med/Low)	High	



Action Number: JFT-4

Mitigation Action/Initiative: Upgrade Township Communication Dispatch Center

	Assessing the Risk					
Hazard(s) addressed:	All					
Specific problem being mitigated:	The Township currently has an outdated communications center that was installed in 1994. By updating, it would make available the latest technology for emergency and day-to-day dispatch center.					
	Evaluation of Potential Actions/Projects					
Actions/Projects Considered (name of project and reason for not selecting):	Have been making temporary repairs and upgrades to a very outdated system Do nothing – current problem continues No other feasible actions/projects identified					
	Action/Project Intended for Implementation					
Description of Selected Action/Project	Replace antiquated dispatch center with up-to-date systems for emergency operations center					
Action/Project Category	SIP					
Goals/Objectives Met	G-3					
Applies to existing, future, or not applicable	Existing					
Benefits (losses avoided)	Safety of residents and first responders					
Estimated Cost	High-\$250,000					
Priority*	High					
	Plan for Implementation					
Responsible Organization	OEM, Police, Fire, EMS, DPW, and Utility Departments					
Local Planning Mechanism	Emergency Management, Capital Improvement					
Potential Funding Sources	Grants/Township Funding					
Timeline for Completion	1 to 5 years					
	Reporting on Progress					
Date of Status Report/ Report of Progress	Date: 12/31/15 Progress on Action/Project: OEM/PD					

^{*} Refer to results of Prioritization (next page)



Action Number: JFT-4

Mitigation Action/Initiative: Upgrade Township Communication Dispatch Center

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Improve safety of residents and first responders
Property Protection	1	
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	
Fiscal	1	
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	All
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	14	
Priority (High/Med/Low)	High	



Action Number: JFT-5

Mitigation Action/Initiative: Lake Shawnee Bridge Replacement

Assessing the Risk		
Hazard(s) addressed:	Flood	
Specific problem being mitigated:	Bridge on Lake Shawnee Trail needs to be replaced after being damaged by flooding over the last five years. Temporary repairs have been made over the years.	
Evaluation of Potential Actions/Projects		
Actions/Projects Considered (name of project and reason for not selecting):	1. Turn bridge over to the Bridge Division of Morris County.	
	2. Do nothing – current problem continues	
	3. No other feasible actions/projects identified	
Action/Project Intended for Implementation		
Description of Selected Action/Project	Complete engineering study for bridge replacement on Lake Shawnee Trail and meet with County Engineering to discuss project.	
Action/Project Category	SIP	
Goals/Objectives Met	G-3, G-4	
Applies to existing, future, or not applicable	Existing	
Benefits (losses avoided)	Insure roadway safety	
Estimated Cost	High -\$100,000 +	
Priority* Medium		
Plan for Implementation		
Responsible Organization	DPW, Township and County Engineers	
Local Planning Mechanism	Emergency Management, Capital Improvement	
Potential Funding Sources	Grants and State, County and Local Funding	
Timeline for Completion	Short Term – 1 to 5 years	
Reporting on Progress		
Date of Status Report/ Report of Progress	Date: 12/31/15 Progress on Action/Project: Township Engineer	

^{*} Refer to results of Prioritization (next page)



Action Number: JFT-5

Mitigation Action/Initiative: Lake Shawnee Bridge Replacement

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Protect the structure and surrounding properties from further damage
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	
Fiscal	0	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
Total	9	
Priority (High/Med/Low)	Medium	